SPECIAL INSTRUCTIONS FOR CAPACITORS COMPACT GENERATORS

(WITH CAPACITOR CHARGER BOARD A3517-02)

The Installation process depends on Generator and System configuration. This document applies to installation of Capacitors Compact Generator.

DO NOT PLUG IN THE UNIT TO THE MAINS SOCKET UNTIL SPECIFICALLY INSTRUCTED IN THIS SERVICE MANUAL.

THIS GENERATOR IS PERMANENTLY CONNECTED TO THE POWER LINE THROUGH A LINE PLUG. IT IS POWERED ON UNLESS THE SAFETY SWITCH INSTALLED IN THE ROOM ELECTRICAL CABINET IS OFF. WHEN THE UNIT IS POWERED, THE NEON (GREEN) LOCATED ON THE TRANSFORMER 6T2 IS ON.

KEEP THE PROTECTION COVERS IN PLACE ALL THE TIME, ONLY REMOVE THE COVERS TO PERFORM SERVICE OPERATIONS. INTERNAL PARTS (CAPACITOR OF HV INVERTER, STORAGE CAPACITORS MODULE, LINE FUSES, DC BUS FUSES, ETC.) CAN BE PERMANENTLY POWERED ON AND HAVE THE FULL VOLTAGE POTENTIAL OF THE CAPACITORS (APPROX. 800 VDC), ALTHOUGH THE UNIT IS DISCONNECTED FROM THE LINE OR THE CONTROL CONSOLE IS OFF. USE CAUTION WHEN WORKING IN THIS AREA.

SECTION 1 UNPACKING AND INSTALLATION

The generator is shipped in one box to facilitate transport and installation.

Upon receipt of the X-ray unit and associated equipment, inspect all shipping containers for signs of damage. If damage is found, notify the carrier or his agent immediately.

1.1 CAPACITORS POWERED COMPACT GENERATORS

1. Open the shipping box, then move away the Control Console, Interconnection Cables, Cabinet Cover and other furnished parts. Do not discard any packing material such as envelopes, boxes, bags until all parts are accounted for as listed on the packing list.

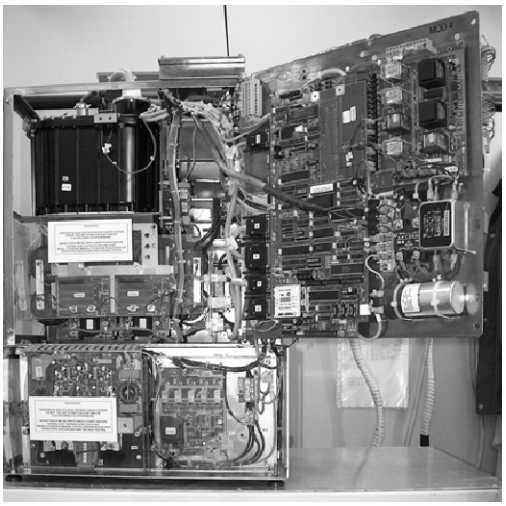
2. Remove the packing material from the pallet.

3. Remove the Generator Cabinet from the shipping pallet and place it near to its site in the room. At least two people are required for this operation.

4. When the equipment is unpacked, verify that all items on the customer order are present, and the hardware and internal wiring is secure.

5. Check the part numbers / serial numbers of each component with its identification labels, and inspect all pieces for visible damage. If any damaged parts are found, repair or order replacements to prevent unnecessary delay in installation.

Illustration 1-1
Capacitors Compact Generators



6. Usually Generator Cabinet stands freestanding. Seismic areas and other conditions require to make firm the Generator Cabinet to the floor through the mounting holes on the bottom.

   In some cases due to transport safety requirements, the HV Transformer is shipped out of the Generator Cabinet. Install the HV Transformer inside the Cabinet (upper area) and secure it with the respective anchors or plates, then connect the following cables from the Power Module to the corresponding terminals on the HV Transformer:

   - P2-Shield (2 thin wires), P1 and P3. Take care to connect these cables to the stud-brass terminals, use two wrenches to tighten the nuts and avoid twisting the studs.
   - Ground wire to Ground stud.
   - Connector J1.

THE HV TRANSFORMER HAS TO BE SECURED WITH ITS ANCHORS OR PLATES INSIDE THE CABINET. OTHERWISE P1, P2 AND P3 STUDS MAY BE IN CONTACT WITH THE CABINET FRAME AND PRODUCE A SHORT-CIRCUIT.

7. Control Console can be freestanding, wall supported or mounted on an optional Pedestal. Console is provided with a several mounting holes on the bottom for anchoring to the Pedestal or another support.

   Console CPU Boards and AEC Control Board can be located inside the Console (standard) or inside the Generator Cabinet (for Serial communication).

8. When a Pedestal is used, secure the Pedestal to the floor through the anchoring holes on its base and place the cover base. Assemble the Console to the Pedestal through the mounting holes on the bottom of the Console.

9. When the Console is wall supported, secure the support to the wall and assemble the Console to the support through the mounting holes on the bottom of the Console.

10. Leave a working area around the equipment until its final assembly.

SECTION 2 CABLE CONNECTIONS

This section provides the information necessary to connect the Generator Cables with the system and options.

Note ☞ *For more information about electrical requirements and cable connections, refer to "Pre-Installation" and "Installation" documents of the Service Manual.*

Note ☞ *Identification of some terminal connections (TB, TS), boards, etc... along this document (text and schematics) may have a prefix number which indicates the module number in the equipment. (a.e. TS2 as 4TS2, 10TS2 or 11TS2).*

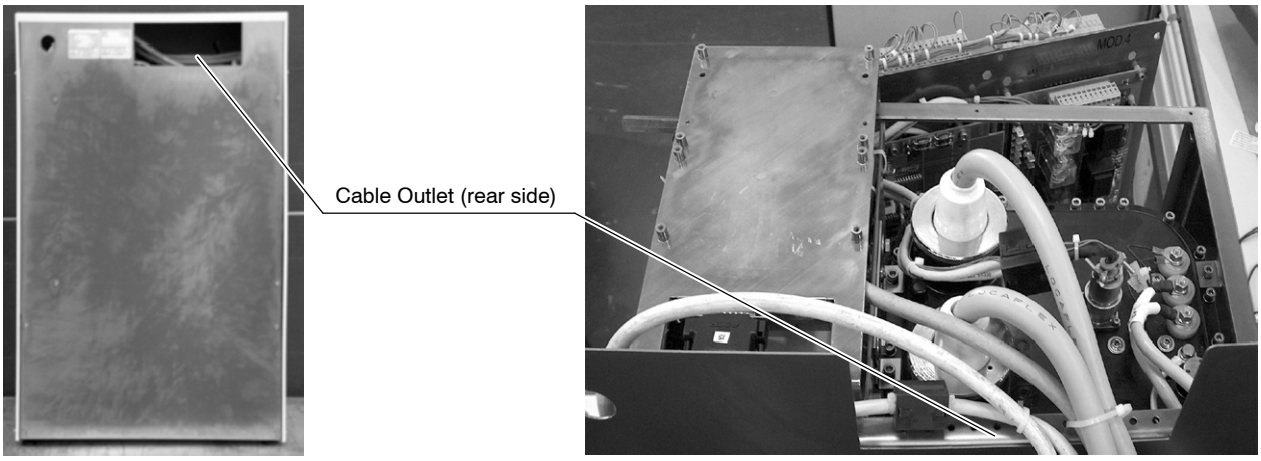
Some safety devices such as Safety Switch / Emergency Switch, Warning Light, and Door Interlock Switch are supplied and installed by the customer. Verify that safety devices have been properly installed and routed during the Pre-Installation procedure.

2.1 CABLE ROUTING INSIDE CAPACITORS GENERATOR CABINET

Previous to cable connections inside the Generator Cabinet, route and secure the cables in the following way:

1. All cables have to be routed over the Fastening Bar (upper rear bar) of Cabinet Frame. Be in mind the Cable Outlet at the rear side of Cabinet Cover.

Illustration 2-1
Cable Outlet



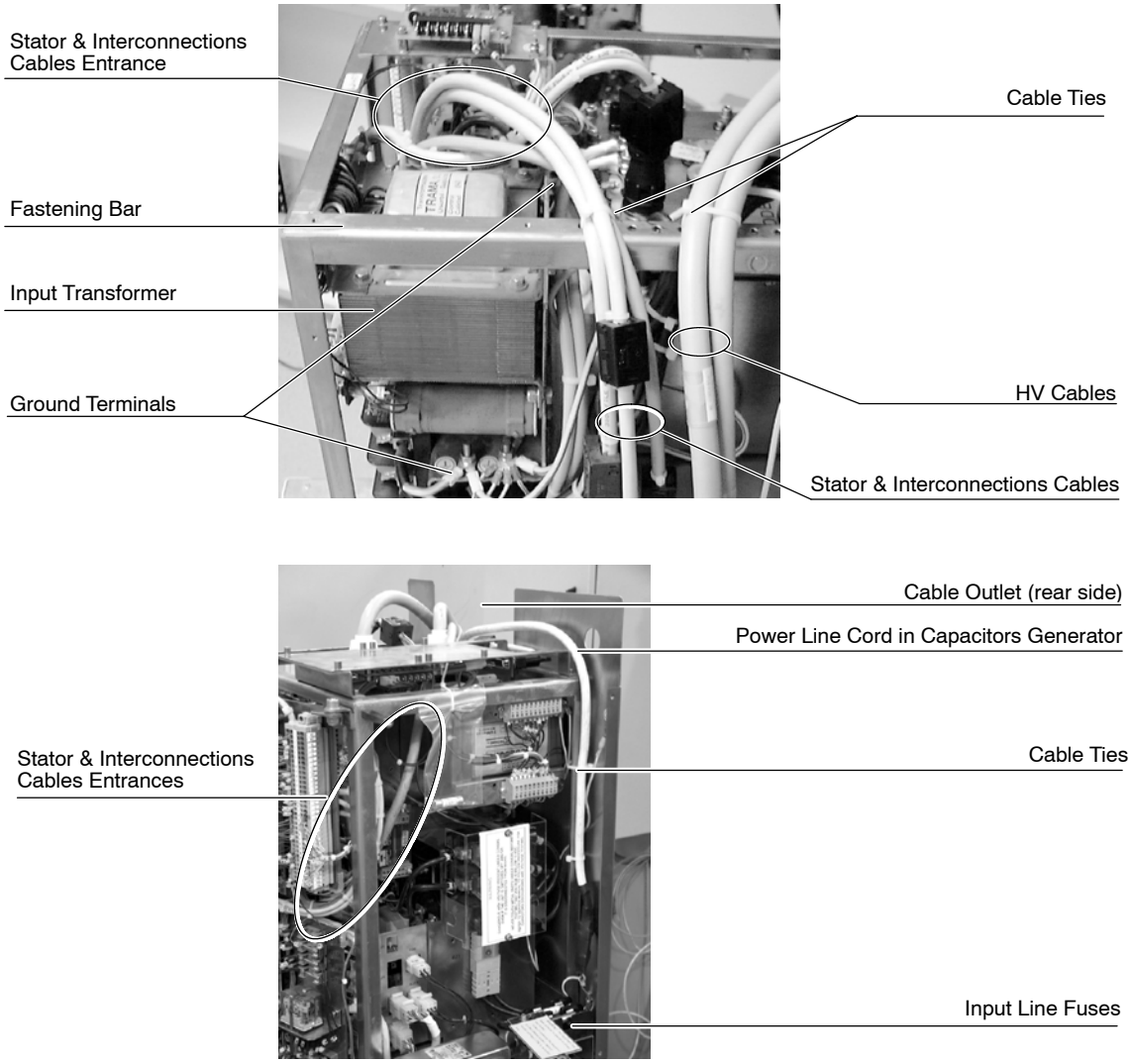
2. For Capacitors Compact Generators, Line Cord have to be fastened and routed over the Fastening Bar and Cabinet Frame as illustrated below, before connecting the cable to the Line Terminals (L1 and L2/N) in Fuses 8F1 and 8F2.

3. Stator and Interconnections Cables have to be routed internally through the Cabinet close to the Input Transformer.

4. Connect all cables as indicated along Section 2 "*Cable Connections*" of "*Installation*" document in Service Manual.

5. Secure all cables to the Fastening Bar using cable ties after all cable / wire connections are completed.

Illustration 2-2
Cable Routing



2.1.1 CAPACITOR COMPACT GENERATORS

1. Before connecting the cables, check that an Emergency Switch has been connected to Room Electrical Cabinet so that it cuts the power to the generator when it is off.

2. Measure the line voltage at the wall socket. Obtain a suitable line cord and plug to conform to local codes and requirements. The power supply line should be according to the "*Pre-Installation*" document.

3. Cut the line cord to the appropriate length, route and connect it to the Line Terminals (L1 and L2/N) of Fuses 8F1 and 8F2, and the Ground wire to the Ground Stud close to these fuses. (*Refer to Schematics 54302020*).

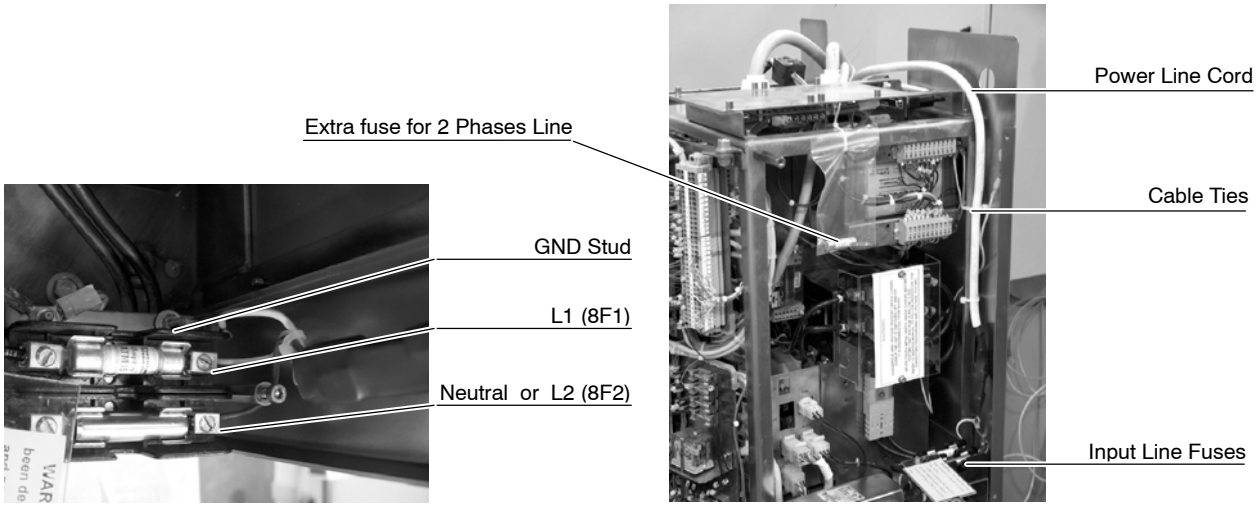
4. Connections of Power Line wires must be made as indicated below:

INPUT LINE VOLTAGE					
1 Phase + Neutral			**2 Phases**		
L1-Phase	Neutral	Ground	L1-Phase	L2-Phase	Ground
L1 (8F1)	N (8F2)	GND Stud	L1 (8F1)	L2 (8F2)	GND Stud

THE CAPACITORS GENERATOR IS FACTORY DELIVERED TO OPERATE ON PHASE AND NEUTRAL. IN CASE OF CONNECTING THE UNIT TO A TWO PHASES LINE, REPLACE NEUTRAL CARTRIDGE BY THE FUSE SUPPLIED WITH THE GENERATOR.

5. Install the line plug to the other end of the cord.

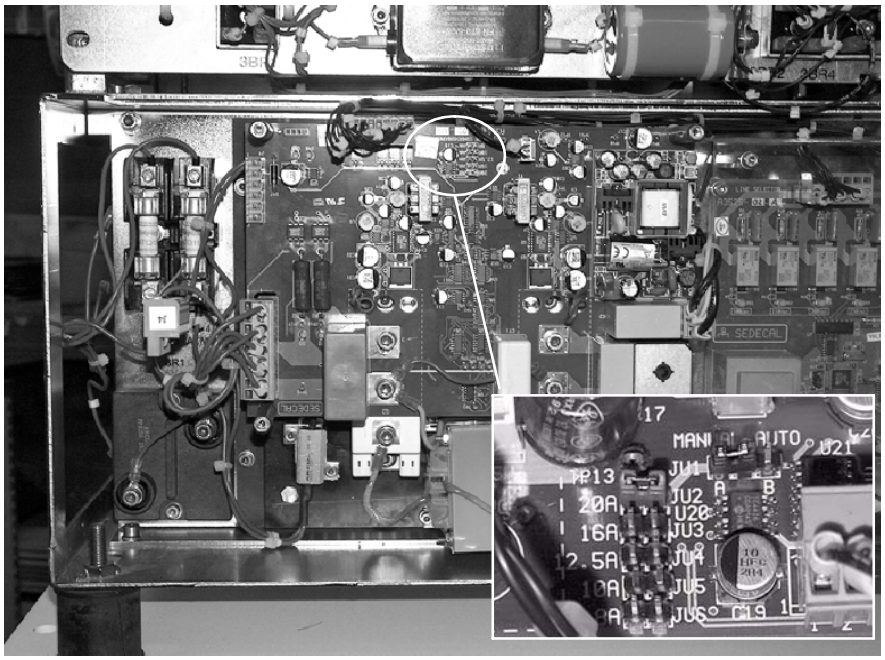
Illustration 2-3
Power Line Connection



6. According to the Room Circuit Breaker (Magnetothermic), set the Jumper at the Capacitors Charger Board (A3517-01) to the indicated position. This Jumper is factory set at JU2 for a 20 Amps Circuit Braker.

CIRCUIT BRAKER (MAGNETOTHERMIC)	JUMPER POSITION
8 Amps	JU6
10 Amps	JU5
12.5 Amps	JU4
16 Amps	JU3
20 Amps	JU2
Note.- Jumper JU1 has to be always set at "Manual" position	

Illustration 2-4
Jumper Setting at Capacitors Charger Board



7. Re-install the plastic covers over Inputy Line Fuses and Capacitor Charger Board.

DO NOT PLUG IN THE UNIT TO THE MAINS SOCKET UNTIL SPECIFICALLY INSTRUCTED IN THIS SERVICE MANUAL.

2.1.2 PROCEDURE FOR STORAGE CAPACITORS DISCHARGING AND VOLTAGE TESTING

PERFORM THIS PROCEDURE PREVIOUS TO MANIPULATE INSIDE THE CAPACITORS GENERATOR FOR SERVICE.

CAREFULLY HANDLE ALL INTERNAL PARTS OF THE EQUIPMENT, SPECIALLY PARTS UNDER COVERS. DANGEROUS DC VOLTAGE IS PRESENT IN THE UNIT EVEN IF IT IS UNPLUGGED FROM THE AC LINE.

NEVER TOUCH METAL PARTS UNDER COVERS BEFORE TESTING THAT VOLTAGE IS BELOW 10 VDC. PERFORM THE PROCEDURE FOR CAPACITORS DISCHARGING AND VOLTAGE TESTING PREVIOUS TO MANIPULATE INSIDE THE GENERATOR FOR SERVICE.

KEEP IN MIND THE GENERAL CAUTIONS FOR CAPACITOR ASSISTED GENERATORS INDICATED BEFORE.

1. With the Generator turned OFF, be sure that the Power Supply Cable is unplugged from the Mains socket.

2. Take away the Generator cover.

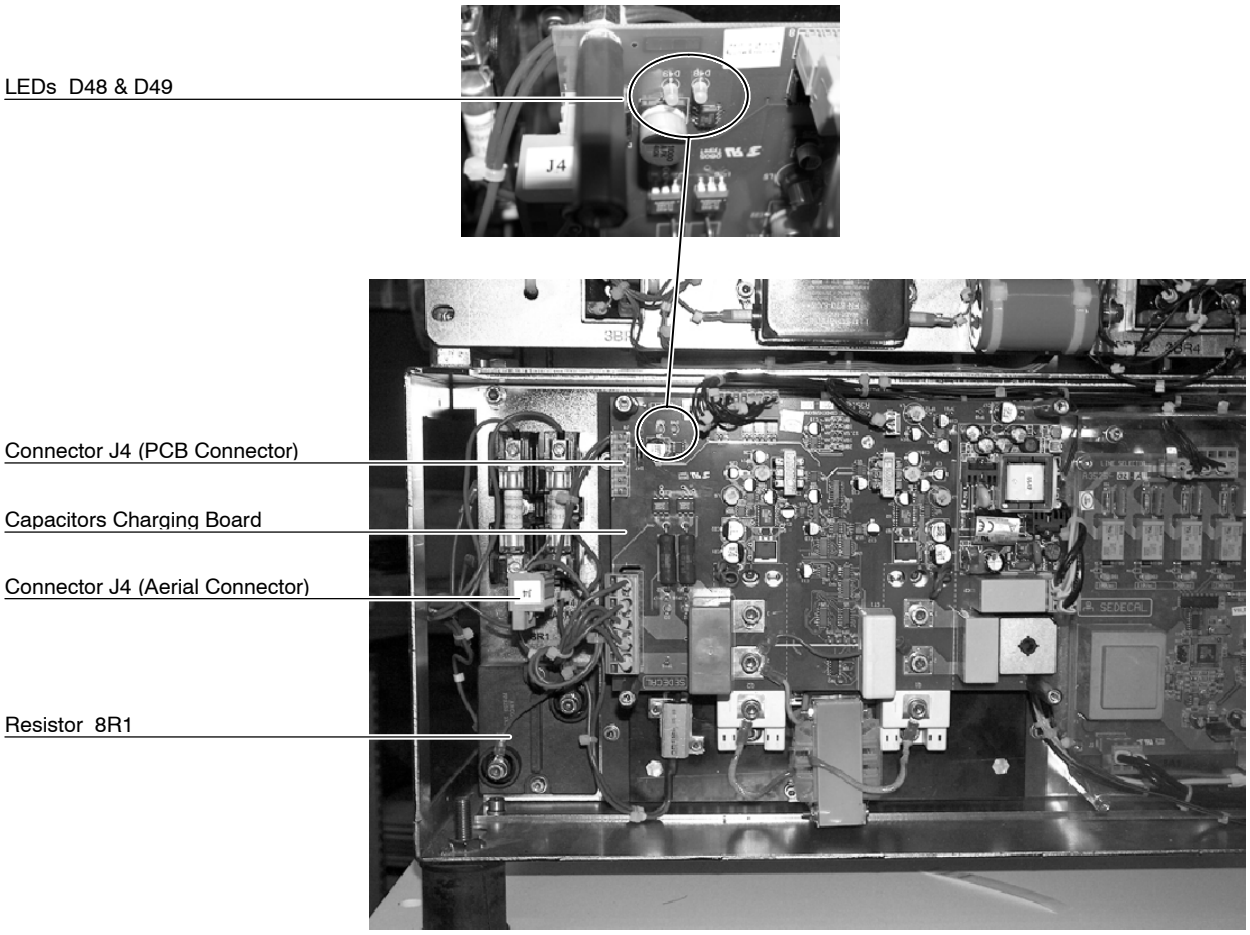
3. Carefully, remove the Protection Cover over the Capacitor Charger Board (A3517-xx). **DO NOT TOUCH ANY METAL PART UNDER COVERS UNTIL THE CAPACITORS ARE FULLY DISCHARGED AFTER THIS PROCEDURE.**

4. Resistor 8R1 (1K5 ohms, 250 W) is assembles close to the Capacitor Charger Board to allow the Capacitors discharging. Connector J4 (from this resistor) must be disconnected for normal operation of the Unit, and ONLY MUST BE CONNECTED to the J4 of the Capactitor Charger Board for Capacitors discharging process.

5. Plug Connector J4 in the Capacitor Charging Board. Check that LEDs D48 and D49 of this Board are blinking. When the Capacitors are fully discharged, both LEDs will be OFF.

   Capacitors will be discharged from 800 VDC (fully charged) to 10 VDC in approximately 5 minutes.

Illustration 2-5
Connection of J4 for Capacitor Discharging

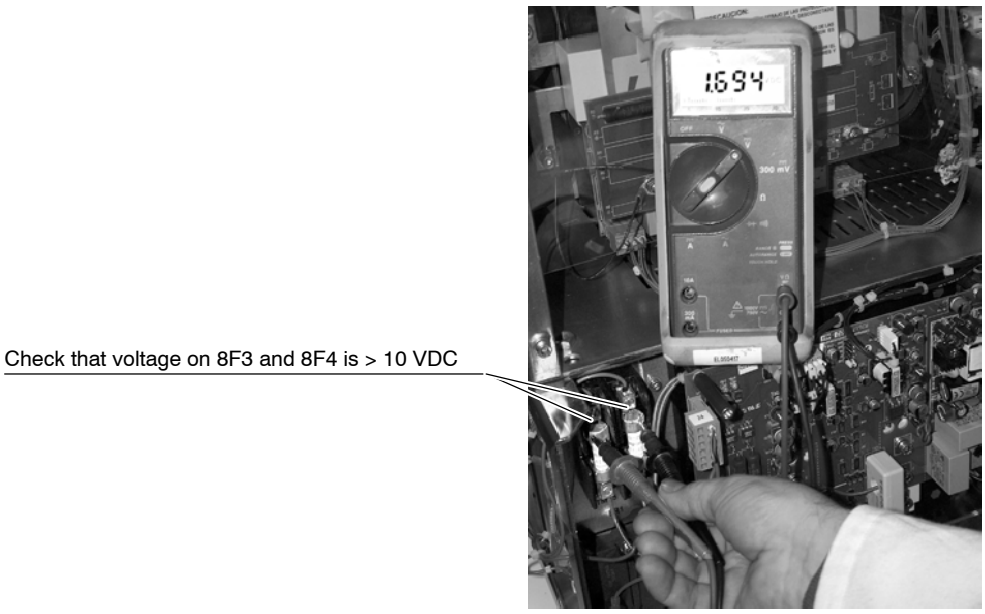


6. Check that the voltage stored in Capacitors is < 10 VDC (maximum voltage for a safe service manipulation). It is recommended that voltage will be close to 0 VDC. For that, check that LEDs D48 and D49 are OFF, and then measure the voltage at the base of Fuses 8F3 and 8F4.

DANGER!

DO NOT MANIPULATE INSIDE THE UNIT WITHOUT CHECKING THAT VOLTAGE IN CAPACITORS MODULE HAS BEEN DISCHARGED (LESS THAN 10 VDC).

Illustration 2-6
Checking voltage



Note ☞ *Storage Capacitors are fully charged four seconds after turning the Generator ON (for a line of 230 VAC with selection of 20 A in the Generator, or maximum 40 seconds for a line of 110 VAC with selection of 8 A in the Generator).*